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EVALUATION BRIEF

Understanding Complex Instructional Change: Classroom Observations of Math in Common Districts

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This report is part of a series summarizing learnings from the five-year Math in Common (MiC) initiative. During MiC, teams from 10 diverse California school districts engaged in learning about and sharing best practices for implementing the Common Core State Standards for Mathematics (CCSS-M) in grades K–8.

Findings from Observations of Classroom Mathematics Instruction

WestEd, the initiative's evaluator, conducted classroom observations over three academic years in participating MiC districts to document K–8 teachers' instructional shifts related to the CCSS-M. Our observation protocol focused on evidence of eight key dimensions of mathematics teaching and learning that aligned with the MiC districts' CCSS-M instructional goals. This section briefly describes our findings from the data.

HIGH LEVELS OF INSTRUCTIONAL VARIABILITY ACROSS THE EIGHT DIMENSIONS OF CLASSROOM INSTRUCTION

There was wide variation in the ratings from the 201 lessons that we observed, and this variation held across observation periods, across the sample, and across districts.

- More than a quarter (28%) of lessons received a high rating related to the *mathematics* dimension.
- Only one-sixth of lessons (16%) received a high rating on *student agency, authority, and identity.*
- Two-thirds (66%) of lessons exhibited some student *mathematical sense-making.*
- About one-third of lessons included no evidence of two dimensions: *linking representations* (34%) and *multiple solutions/procedures* (37%).
- The majority of lessons (54%) did not receive the highest rating on any of the dimensions.
- There was no clear evidence of improvements over time; lessons observed later in the initiative were not rated significantly differently or more highly than those earlier in the initiative.

WHAT DID HIGHLY RATED CLASSROOM INSTRUCTION LOOK LIKE?

Teachers and administrators do not have access to enough detailed examples of ideas from the CCSS-M implemented at an expert level in real classrooms. In order to provide exemplars for practitioners and policymakers, we examined the lessons that received top ratings.

Our statistical analyses found that our protocol's eight dimensions were highly correlated with one another. That is, some of the dimensions were so closely linked statistically that they could be considered elements of one phenomenon.

The eight dimensions grouped statistically into five underlying components of classroom instruction: *Access to challenging mathematics*; *Student explanations that serve to support student agency*; *Sense-making and student questioning/reasoning*; *Multiple solutions/procedures*; and *Linking representations*. On the following page are some key themes from lessons rated highly in the combined dimensions, which we believe will be helpful to educators looking to understand what high-quality CCSS-M–aligned classroom instruction can look like in real classrooms.

ACCESS TO CHALLENGING MATHEMATICS

Lessons rated highly in this area tended to involve small groups of students whose shared work was scaffolded through clear roles and established participation norms, as well as through thoughtful mathematical group tasks. In these lessons, the teacher established that mathematics was a collective project of discovery and not just a rote or procedurally focused practice.

STUDENT EXPLANATIONS THAT SERVE TO SUPPORT STUDENT AGENCY

Math Talks, a popular instructional routine for promoting student discourse, were a very common feature in lessons that rated highly in this area. However, the strongest instructional features of the Math Talks often ended when the Math Talks did, and *student explanations* and *student agency, authority, and identity* were not strongly present in other parts of observed lessons.

SENSE-MAKING AND STUDENT QUESTIONING/REASONING

In our sample, contextualized story problems were often a rich task that provided multiple entry points for students with different abilities, supporting many students to think and question in mathematically meaningful ways. At the same time, we frequently observed uneven participation in these elements, where a small group would have a rich sense-making conversation that was never shared during the whole-group time, compromising equity.

WESTED'S EVALUATION

WestEd's formative evaluation over the five-year initiative period draws on an array of data sources, including annual surveys of teachers and administrators, focus groups on topics of interest, classroom observations, district grant reports, student achievement data, and observations of learning events held across the five years. This report draws upon observations in 201 mathematics classes, with ratings in eight dimensions. Observations were conducted by a calibrated observation team over three school years.

Recommendations for the Field

The field needs more evidence of how standards implementation plays out in real classrooms, and district and school leaders also need evidence in order to make good decisions about where to invest their resources to improve teaching and learning. These leaders are best positioned to gather evidence through classroom observations. We offer recommendations for conducting effective classroom observations, based on our experience and on the experience of MiC participants:

- Specify a purpose for an observation rubric and narrow it down to a manageable set of dimensions of classroom instruction to observe.
- Build systems to enable district and school staff to observe and reflect on classroom observation data, and act on those data accordingly. These systems require building a culture of classroom openness and increasing trust between administrators and teachers.

WHAT IS MATH IN COMMON?

The Math in Common initiative provided funding to 10 school districts to support their efforts to implement the CCSS-M. With support from California Education Partners and WestEd, the 10 districts were organized into a community of practice, to accelerate their learning about standards implementation. The best practices identified by the community of practice are intended to be shared broadly to support standards implementation and math improvement in all California districts. For more information about the Math in Common evaluation, see https://www.wested.org/project/math-in-common-evaluation/.